

8. This formula is used in science.

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$$v = \sqrt{2gh}$$

Leave blank

- (a) Hanif uses the formula to work out an estimate for the value of  $v$  without using a calculator when  $g = 9.812$  and  $h = 0.819$

Write down approximate values for  $g$  and  $h$  that Hanif could use.

approximate value for  $g$  .....

approximate value for  $h$  .....

(2)

15. The length of a side of a square is 6.81 cm, correct to 3 significant figures.

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Leave blank

- (a) Work out the lower bound for the perimeter of the square.

..... cm  
(2)

- (b) Give the perimeter of the square to an appropriate degree of accuracy.  
You must show working to explain how you obtained your answer.

..... cm  
(2)

Q15

(Total 4 marks)

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4. Julian has to work out  $\frac{6.8 \times 47.6}{2.09}$  without using a calculator.

May 07 4H

(a) Round each number in Julian's calculation to one significant figure.

.....  
(2)

(b) Use your rounded numbers to work out an estimate for  $\frac{6.8 \times 47.6}{2.09}$

Give your answer correct to one significant figure.

.....  
(2)

(c) Without using your calculator, explain why your answer to part (b) should be larger than the exact answer.

.....  
.....  
.....

(2)

Q4

(Total 6 marks)

11. Jagdeesh has to work out  $\frac{84.2 \times \sqrt{38.2}}{41.6}$  without using a calculator.

May 09 4H

Use suitable approximations to work out an estimate for Jagdeesh's calculation. You **must** show all your working.

Leave blank

Q11

.....  
(Total 3 marks)

The area of a circle is  $14 \text{ cm}^2$ , correct to 2 significant figures.

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- 14 (b) (i) Work out the lower bound for the radius of the circle.  
Write down all the figures on your calculator display.

..... cm

- (ii) Give the radius of the circle to an appropriate degree of accuracy.  
You must show working to explain how you obtained your answer.

[Hint: Also work out the upper bound for the radius]

..... cm  
(4)

(Total 6 marks)

Q14

15. Mia's weight is 57 kg, correct to the nearest kilogram.

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(a) Write down

- (i) the upper bound of her weight,

..... kg

- (ii) the lower bound of her weight.

..... kg  
(2)

Alice's weight is 62 kg, correct to the nearest kilogram.

- (b) Work out the upper bound for the difference between Alice's weight and Mia's weight.

..... kg  
(2)

(Total 4 marks)

Q15

21. Correct to 1 significant figure,  $x = 7$  and  $y = 9$

Nov 04 4H

(a) Calculate the lower bound for the value of  $xy$

.....  
(2)

(b) Calculate the upper bound for the value of  $\frac{x}{y}$

.....  
(3)

(Total 5 marks)

Q21

20. Correct to 2 significant figures, the area of a square is  $230 \text{ cm}^2$ .

May 09 3H

Calculate the lower bound for the perimeter of the square.

Leave  
blank

..... cm

Q20

(Total 3 marks)